ABSTRACT

A computer system, method and computer program product for enabling data analysis is provided. An analytical engine, executable on a computer, provides a plurality of knowledge elements from one or more data sources. The analytical engine is linked to a data management system for accessing and processing the knowledge elements. The knowledge elements include a plurality of records and/or variables. The analytical engine updates the knowledge element dynamically. The analytical engine defines one or more knowledge entity, each knowledge entity including at least one knowledge element. The knowledge entity, as defined by the analytical engine, consists of a data matrix having a row and a column for each variable, and the knowledge entity accumulates sets of combinations of knowledge elements for each variable in the intersection of the corresponding row and column. The invention provides a method for data analysis involving the analytical engine, including a method of enabling parallel processing, scenario testing, dimension reduction, dynamic queries and distributed processing. The analytical engine disclosed also enables process control. A related computer program product is also described.